Online-Only Abstracts

Current management of patients hospitalized with complicated skin and soft tissue infections across Europe (2010–2011): assessment of clinical practice patterns and real-life effectiveness of antibiotics from the REACH study

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Abstract

Complicated skin and soft tissue infections (cSSTI) are common and frequently require treatment in hospital. Comprehensive current data on management practices in patients hospitalized with cSSTI are limited. REACH was a retrospective, observational cohort study designed to provide data on current clinical management of moderate to severe cSSTI in European hospitals. Data were collected via an electronic case report form from 129 sites in ten European countries. The study population comprised patients ≥18 years, hospitalized between March 2010 and February 2011 with cSSTI who received intravenous antibiotic treatment. Presented here is an analysis of the disease characteristics, treatment patterns during hospitalization and clinical outcomes identified by the study. The total population included 1995 patients (mean age 60.6 years; 57.7% male). Initial antibiotic treatment modification was reported in 39.6% (n = 791) of patients; it was more common in patients with co-morbidities (42.6%), those requiring surgical intervention (43.4%), those with more severe infections such as bacteraemia (51.6%) or with fascia affected (49.0%), those admitted to the intensive care unit (56.2%) and those with lesions > 50 cm^2 (44.3%). A switch to narrower-spectrum antibiotic treatment (streamlining) occurred in 5.6% of patients. Mean length of hospital stay was 18.5 days (±19.9; median 12.0) and the total mortality rate was 3.4%. The data collected in REACH give a comprehensive and current view of real-life clinical management of cSSTI in European hospitals and provide evidence of a high rate of initial antibiotic treatment modification.

The cultivable human oral gluten-degrading microbiome and its potential implications in coeliac disease and gluten sensitivity

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Abstract

Coeliac disease is characterized by intestinal inflammation caused by gluten, proteins which are widely contained in the Western diet. Mammalian digestive enzymes are only partly capable of cleaving gluten, and fragments remain that induce toxic responses in patients with coeliac disease. We found that the oral microbiome is a novel and rich source of gluten-degrading organisms. Here we report on the isolation and characterization of the cultivable resident oral microbes that are capable of cleaving gluten, with special emphasis on the immunogenic domains. Bacteria were obtained by a selective culturing approach and enzyme activities were characterized by: (i) hydrolysis of paranitroanilide-derivatized gliadin-derived tripeptide substrates; (ii) gliadin degradation in-gel (gliadin zymography); (iii) gliadin degradation in solution; (iv) proteolysis of the highly immunogenic α-gliadin-derived 33-mer peptide. For selected strains pH activity profiles were determined. The culturing strategy yielded 87 aerobic and 63 anaerobic strains. Species with activity in at least two of the four assays were typed as: *Rothia mucilaginosa* HOT-681, *Rothia aeria* HOT-188, *Actinomyces odontolyticus* HOT-701, *Streptococcus mitis* HOT-677, *Streptococcus* sp. HOT-071, *Neisseria mucosa* HOT-682 and *Capnocytophaga sputigena* HOT-775, with *Rothia* species being active in all four assays. Cleavage specificities and substrate preferences differed among the strains identified. The approximate molecular weights of the enzymes were ~75 kD (*Rothia* spp.), ~60 kD (*A. odontolyticus*) and ~150 kD (*Streptococcus* spp.). In conclusion, this study identified new gluten-degrading microorganisms in the upper gastrointestinal tract. A cocktail of the most active oral bacteria, or their isolated enzymes, may offer promising new treatment modalities for coeliac disease.